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The Complications of Cholecystitis—The Experience of the Last Three Years

BY

BAYARD HOLMES, M.D.

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THE COMPLICATIONS OF CHOLECYSTITIS—THE EXPERIENCE OF THE LAST THREE YEARS*

By Bayard Holmes, M.D., Chicago

In the last three years the literature of cholecystitis has been rewritten. More than five hundred valuable articles and books have appeared during that time upon the subject and its relations. Sixty-three of these books and articles are of such a character that they can be classed only as general treatises. Eightytwo confine themselves largely to operative and technologic aspects, while over two hundred were devoted almost exclusively to various local complications that result from cholecystitis or to remote systemic symptoms. The only parts of the subject which seems to have been neglected are those that might be classed as etiologic, anatomic, pathologic and serologic.

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It is only one horizon of this vast contribution to medical science which I shall try to present at this time, but I trust that it will discover to you, as it has to me, the remarkable trend of surgical practice during this brief period. If, therefore, the customary form of my essay, which the title might suggest, is not carried out, you must consider that it is due to my limitations in time, as well as to my inadequate equipment for the task.

Cholecystitis is a disease which is limited by its name to the gall bladder, but it must not be for a moment considered that from a clinical standpoint such a limitation prevails. In practically every instance, the disease is initiated by an infection which reaches the gall bladder through the excretory ducts of the liver. The microorganisms of most infectious diseases are eliminated from the circulation by way of the portal vein, the biliary capillaries of the liver, the bile ducts and the common duct. In this way the typhoid bacillus enters the gall bladder in every case of typhoid, and the microorganisms of other septicemias, such as the pneumococcus and the colon bacillus in their several infectious conditions of the blood.

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Even the tubercle bacillus gains entrance to the gall bladder by the same channels, but it is of little clinical importance.

From this very etiologic fact, it would at once be premised that the biliary conduits of the liver and the common duct itself take part in this infectious process. The anatomy of the gall bladder determines the persistence of the disease in this viscus. The complicated valves of Heister, which are studded with mucous cryptlike glands, retain the infectious material after all trace of the microorganisms has been washed out of other conduits, even from the blind biliary ducts in the capsule of the liver, the round ligament and the under surface of the diaphragm (*vasa aberrantia*).

The continued growth of the microbes in the secretions of the walls of the gall bladder results in a most remarkable change in its mucosa. While only a few mucous glands (six to twenty) are found close to the cystic duct in the healthy gall bladder, in the gall bladder which has long suffered from an inflammatory process, even the fundus itself is thickly studded with mucous glands that penetrate through the muscular layer, and occasionally stand on the outside of the gall bladder as retention cysts.

The muscular and fibrous elements of the gall bladder wall also increase in thickness and complexity, with the result that the muscular tone of the gall bladder is lost, and it becomes physically incompetent.

With this change also the elasticity of the gall bladder is diminished through the process of scar formation, the danger of rupture with each succeeding attack of obstruction of the cystic duct increases and leads at last to this irreparable complication.

The mechanical and local changes in cholecystitis are not the only ones to be considered by the pathologist and clinician. There is a distinct and clinically well recognized toxemia, due to this condition, which has a selective action upon distant organs. Thus the incompetency of the heart due to gall bladder intoxication, and the spasm of the bronchial tubules of the lungs, which is recognized as anaphylactic asthma, are among the many remote but serious effects of a simple cholecystitis.

Infection, mucous adenopathy, calculi, motor insufficiency, new growths, remote toxemias and liability to injury and rupture are among the inevitable consequences of cholecystitis.

Of the something more than five hundred articles on cholecystitis and its complications, which were published during the last three years, those by Haughton, Hay, Hayd, Shober, Jopson, Dever, Garvin, Zenker, Eichmeyer, Glaser, Schnitzler, Capelle, Else, Alsobrock, Kehr, Riedel, Fagge, Finsterer, Feldhahn, Duvergey, Kubig, Marconnet, Schlessinger, each mention complications, some of them unique, and all of them interesting. They extend all the way from pyloric spasm and myocarditis to absolute anuria and general central arteriosclerosis. They include all the results of local peritonitis with defects in the biliary and portal circulation. They manifest all the symptoms of sudden peritonitis, complete gangrene of considerable portions of the small intestine, local abscesses discharging into the lung, into the stomach, into the colon, into the pelvis of the kidney, into the uracus, into a hernal sac, into the rectum, into the urinary bladder, and through the skin.

It would be wholly unnecessary to describe many of these complications, and it would be absolutely impossible to give a full account of even a single one of them. It is therefore my intention to present the outlook which the average practitioner ought to maintain toward this disease.

Appendicitis is not the same to us as it was to our medical ancestors in 1880. At that time the complications of appendicitis were recognized by all, and they were considered the proper subject of surgical treatment, but the primary disease of the appendix was rarely recognized, and the significance of simple appendicitis was absolutely unknown.

It is the same with the complications of gall bladder disease today, and our success in treating these unfortunate events will never reflect credit on our professional proficiency, though it may give opportunity to the surgeon to display his technical resources by daring operations and tragical surgical exploits. However, these complications are of the utmost importance as positive indications for the early surgical treatment of simple cholecystitis, that form of gall bladder disease which Kukula says affects 10 per cent. of the adult inhabitants of Germany, and which Reidel declared in 1888 was wholly beyond the possibility of clinical diagnosis in 90 per cent. of all who actually suffered of it. Now that the relations between pathologic cholecystitis and the expression of the disease in symptoms of diagnostic usefulness is so much better understood, there is no more difficulty in making the diagnosis of cholecystitis than there is of making an equally early diagnosis of appendicitis; and, moreover, the gravity of the complications in the one condition is no greater than it is in the other. In the latter instance, however, neither the profession nor the general public opinion will hold that physician guiltless who watchfully nurses a case of appendicitis into a sudden and irreparable complication, while the profession is hardly ready to sustain the physician in requiring every case of cholecystitis to be operated upon as soon as it is discovered.

Even in the most remote communities of the United States, the physician who has a case of general peritonitis from appendicitis is today in an apologetic attitude, and it will not be long before the physician who finds himself with a case of cholecystitis, with pancreatitis, phlebitis, necrosis of the gall bladder, carcinoma in the region of the gall bladder, ulcer of the duodenum, or spasm of the pylorus and local infection, with its multitude of symptoms, will be required to give an equally embarrassing apology for his watchful care.

In actual practice today, complicated cases of appendicitis are excessively rare, while uncomplicated cases of cholecystitis are just beginning to receive the surgical treatment for which our thesis is defended.

Eichmeyer reports 120 consecutive operations from Kehr's clinic, in which simple cholecystostomy was performed in three cases and cholecystectomy in twenty-six complicated cases (some of the complications being fistula, dilatation of the stomach, carcinoma of the liver, carcinoma of the pancreas, fistula in the colon, calculi in the hepatic, or in the common duct). In another series of 316 cases, 134 were complicated cases of choledochitis, or other condition, requiring drainage of the hepatic duct, seventyeight of these were clear cases of a mechanical nature, of whom three died, twenty-three had benign complications, of whom also three died, fortysix had severe, or malignant, irremediable complications, of whom thirtysix died. *Every one of these cases could have been brought to surgical assistance by symptoms which appeared from three to thirtyfive years previously.*

We have long passed the time when jaundice was an absolutely essential symptom for the diagnosis of cholecystitis. We have also long passed the time when gall stones were looked upon as the essential object of operation upon the gall bladder or bile ducts. We no longer expect that gall stones will be dissolved by olive oil, or that the relief of gall bladder colic by whatever means secured is an indication of a cure of the disease or a promise of the safety of the patient; but we have not yet arrived at that stage of rational prognosis when we can say to a person who has symptoms adequate to establish the diagnosis of cholecystitis, that immediate surgical treatment is necessary. We acknowledge that the complications are grave and often irremediable. We allow that a large part of the cases generally termed ulcers of the duodenum and stomach, a large portion of the cases of motor insufficiency of the stomach, practically all of the primary carcinomas in the region of the gall bladder, both of the stomach and in the adjoining viscera and many other discomforts are consequentially related to a long active cholecystitis, and that local peritonitis, and many diseases of the liver, and symptomatic conditions in such remote organs as the heart, the bronchi and the facial nerves, are due to this disease, and yet we allow such patients to drift along into insoluble complications when they could be saved by a simple, safe, and not unpleasant drainage of the gall bladder.

The surgery of the gall bladder, which is designed to prevent the serious complications for which most gall bladder and bile duct surgery is now undertaken, is not unmodified by the surgical fashions of the day. Through the *ex cathedra* teaching of the operators in the great clinics of the world, where patients are more abundant than time for study, our near surgeons are now making exploratory laparotomies as our ancestors did in the early 80's. At that time it was necessary for an autopsy *in vivo,* the anatomy of the dead house not being sufficient for the education of the surgeon. The long incision is now made because an exclusive diagnosis is often prevented by the inability of the surgeon to have the patient under observation long enough for a close personal study and an accurate exclusive diagnosis. It must be admitted, of course, that exceptionally, the exploratory laparotomy will occasionally discover important attendant and related or unrelated conditions which might possibly require a subsequent surgical operation; but, on the other hand, the practice of making the long incision so protracts the operative maneuvers that many patients suffering of toxemia from gall bladder disease, or weak from diminished nutrition from the consequent motor insufficiency of the stomach, would either be deterred from accepting the promised relief of the operation or they would succumb of the added and unnecessary traumatism. The more accurate the diagnosis, the shorter the incision and the briefer the duration of the anesthetic, and the more pleasant the cure.

One cannot fail, in looking over the literature of the past three years, to observe the strong trend of operators toward cholecystectomy and ideal cholecystotomy or cholecystorrhaphy in cases where cholecystostomy was formerly performed. It has always appeared to me that the gall bladder was a more or less functionating viscus, and that it could not, like the appendix vermiformis, be removed without interfering somewhat with the function of the biliary apparatus. Several writers during the past three years have shown that in animals the gall bladder is replaced in the course of time from the simplest remnant of the cystic duct. This is particularly noticeable in the cases of Else in jack-rabbits. It has often been observed that dilatations appeared at the junction of the hepatic duct and the choledichus after cholecystectomy, and yet the patients who have had the gall bladder removed seem to recover quite as well and have quite as normal a biliary function as those who have been treated by simple drainage of the gall bladder.

My own experience in the matter has been modified, and my practice has been guided by my histological studies of the fundus of the gall bladder. A part of each of these organs operated upon by me has been removed for histological study. Even in the gall bladders that were not materially thickened, the fundus has been studied with adventitious mucous glands, frequently so encroaching upon the muscularis as to actually penetrate it with the branches of its epithelial structures. It is because of this *acne* of the gall bladder, as it might be called, that I would recommend protracted drainage rather than extirpation.

Another element has recently appeared in gall bladder surgery which seems questionable to me from many standpoints. It is the practice of sewing a rubber tube into the gall bladder with a purse-string suture, and dropping this viscus down into the abdomen and closing the remainder of the abdominal wound. This is a proper procedure when the gall bladder is atrophic.

If the operation is performed early in the course of cholecystitis, the gall bladder is not contracted and it is not so excessively thick that it cannot be drawn in contact with the abdominal wall. It is not surrounded by inflammatory adhesions connecting it with the pyloris or the colon. The cystic duct is not obstructed and the attachment of the gall bladder to the peritoneal incision presents no time consuming difficulties. The inflammatory exudate or hyertrophied tissue about the cystic duct does not exist until after numerous attacks of gall bladder disease and therefore the attachment of the fundus of the gall bladder to the peritoneal wall of the abdomen does not result in colic from tension upon the cystic duct.

It has always appeared to me that the only indication for the removal of a gall bladder rested upon its own integrity and the potency of the cystic duct. If the cystic duct is pervious, or if its function can be restored, then the gall bladder should not be removed. If, however, the gall bladder is gangrenous, or if the cystic duct is so denuded of its epithelium by the pressure of a stone, or is so surrounded by cicatricial tissue that its function is impaired, or the passage of the bile completely obstructed, then the gall bladder must be removed. Cholecystectomy then seems to me not an operation of choice, but an operation of necessity, with well marked indications.

On the other hand, ideal cholecystotomy, or cholecystorrhaphy, does not seem to me to meet the indication of adequately draining the gall bladder and freeing it of infection and allowing the acne-like adenopathy which I have uniformly observed to subside. I believe that the early closure of the gall bladder after the removal of gall stones is unsafe, and where the cholecystostomy has been performed by some of my colleagues for cardiac disease and (on account of the method followed, the introduction of a drainage tube and the dropping of the gall bladder back into the depths of the abdomen) the drainage has not been continued beyond a few days or a few weeks at the farthest, the results have been uniformly disappointing to the patient.

The ideal treatment of cholecystitis as it appears to me in its early stages, before the cystic duct is destroyed, is cholecystostomy, with drainage of the gall bladder for six or eight weeks at the least. This operation should be performed through a laparotomy wound of not more than two inches in extreme length and the gall bladder wall should be attached to the peritoneum on both sides by a single or by a few sutures. The drainage tube should be placed in the gall bladder and sewed there with a silk worm gut stitch, and the lower portion of the wound closed either with or without a simple gauze drain to prevent the omentum from becoming attached to the gall bladder.

CONCLUSIONS

1. The many complications of cholecystitis are only added indications for an early operative procedure.

2. Every case of cholecystitis promises such serious, threatening and unremediable consequences and complications that anything but an immediate drainage is unsafe, unwise and unfair to the patient.

3. In early cholecystitis the proper operation is simple cholecystostomy, with prolonged drainage of the gall bladder and the biliary ducts.

4. The brilliant results which follow choledochotomy, and the other tragic operations which a long neglected cholecystitis frequently entails, are hardly creditable to the judgment of the medical profession, which allows them to be nursed into such an emergency under reputable therapeutic care.

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